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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,124	01/20/2004	Olav Finkenwirth	NOS-102	8794

42419 7590 08/31/2007  
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EXAMINER
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WANG, EUGENIA

ART UNIT	PAPER NUMBER
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1745

MAIL DATE	DELIVERY MODE
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08/31/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/761,124	Applicant(s) FINKENWIRTH ET AL.	
	Examiner Eugenia Wang	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-23 and 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the reply filed on July 11, 2007:
  - a. Claims 1-23 and 35 are withdrawn. Claims 24-34 are pending.
  - b. The previous objection to the drawings has been withdrawn in light of the amendment.
  - c. The previous claim objection has been withdrawn in light of the amendment.
  - d. The previous 112(2) rejection has been withdrawn in light of the amendment.
  - e. The rejection is maintained (with slight changes made in light of the added limitations of the amendments), thus the action is final.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 24-34 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for being used in a solid oxide fuel cell (SOFC), does not reasonably provide enablement for other solid electrolyte fuel cells (i.e. polymer). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The ceramic layer that serves as both the electrolyte and the insulating

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layer would only apply to a SOFC, as all of the description of prior art as well as the description of preferred embodiments is drawn to.

***Response to Arguments***

3. Applicant's arguments filed July 11, 2007 have been fully considered but they are not persuasive.

Applicant argues that the amendment to a solid electrolyte fuel cell overcomes the rejection.

Examiner respectfully disagrees. The scope of the invention encompasses only solid oxide fuel cells (as ceramic layers are used). Thus the claims should be drawn towards a solid oxide fuel cell, rather than just a solid electrolyte fuel cell (i.e. polymer electrolyte).

28 and fail to rectify the problem, they are rejected as well.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 24-29 and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4937152 (Sato et al.).

As to claims 24-29 and 31-33, Sato et al. teach a fuel cell with a solid electrolyte [5], in where the electrolyte [5] is the sealing structure (as applied to claim 24) (col. 4, lines 52-54). Therefore, the sealing structure is the insulating layer and sealing layer of

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the sealing structure as well. As can be seen by fig. 2a, the electrolyte [5] layer is applied to both the separator [3] and fuel cell via air electrode [4] (as applied to claim 24). \*As seen in fig. 2c, electrolyte layers lie between adjacent separators (as applied to claim 24). It is said that the electrolyte layer [5] can be formed using plasma thermal spraying (as applied to claims 25-27) (col. 3, lines 61-68). Since the electrolyte [5] serves as the insulating layer, its application is done simultaneously in one process step (as applied to claims 28, 29, and 33). Additionally, the plasma coating nozzle would inherently extend to a certain displacement area in order to apply the electrolyte layer and the insulating area, where the nozzle is extended to a point that it covers all required sealing locations (as applied to claims 32 and 33). Fig. 2c shows the fuel cell member [1] (as seen in fig. 2a) as a stack (as applied to claim 31).

5. Claims 24 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6440597 (Mizuno).

As to claims 24 and 30 Mizuno, US teaches a fuel cell stack made up of many fuel cell units, with fig. 1. The electrolyte membrane [22] in each fuel cell unit is a solid polymer electrolyte material (as to claim 24) (col. 5, lines 29-31). \*As seen in fig. 1, seal structure [50] lies between two adjacent separators [30] (as applied to claim 24). Additionally, each fuel cell unit has seals [50, 60] in between the separators [30, 40] (fig. 1). The seals [50, 60] consist of two layers: the first layers [52, 62] are made of comparatively soft rubber foam, and the second layers [54, 64] are made of a harder rubber (col. 5, lines 51-58). (Further explanations will use only one side of the separator [50] for simplicity.) The second layer (sealing layer) [54] is placed against the

electrolyte membrane [22], and the first layer (insulating layer) [52] is placed against the separator [40] (as applied to claim 24) (col. 6, lines 19-22). Additionally, it is said that the separator [40] has a roughness that the softer rubber of layer [52] absorbs for better sealing ability (as applied to claim 30) (col. 6, lines 19-24).

6. Claims 24 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/54131 (Thompson et al.).

As to claims 24 and 34, Thompson et al. teach a solid oxide fuel cell (SOFC), seen in fig. 4a., with a separator plates [11] sandwiched between anode [14] and cathode [17]. Reference [29] indicates a sealing arrangement between separator plates [11] and comprises of a glass-ceramic insulation layer [30] and a sealing layer [40] of glass or a combination of glass and glass ceramic (as applied to claim 24) (p 9, lines 25-27). \*As seen in fig. 4a, the sealing structure [29] is located between two adjacent separators [11] (as applied to claim 24). Additionally, it is said that the glass ceramic insulation layer [30] is deposited onto the cathode-contacting face [12] of the separator plate [11] prior to the assembly of the SOFC, and then layer 40 is used to bond together the separator plates, thus sealing the electrolyte assembly to the separator plates (as applied to claims 24 and 34) (p 9, lines 29-31; p 10, lines 1-2).

*Note: \* Denotes the sentence added with respect to the amendment of claim 24.*

### **Response to Arguments**

7. Applicant's arguments filed July 11, 2007 have been fully considered but they are not persuasive.

With respect to the Sato et al. reference, Applicant argues that the electrolyte layer is not used as a sealing layer, but as an insulating layer.

Examiner respectfully disagrees. Examiner's interpretation of Sato et al. is that the sealing and insulating layer are integral.

With respect to the Sato et al. reference, Applicant argues that it fails to disclose dividing spaces between a sealing layer and an insulating layer, wherein the insulating layer is formed from an electrolyte material.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the dividing spacers) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the Mizuno reference, Applicant points out that a typographical error was made. Examiner would like to state for the record that the typographical error was made and that Mizuno (US 6440597) was relied upon (and not US 6440598).

With respect to the Mizuno reference, Applicant argues that it fails to disclose (a) applying both an insulating layer and a sealing layer onto at least one predetermined sealing area of a separator plate, (b) wherein an electrolyte material is used to build up the insulating layer of the sealing structure.

Examiner respectfully disagrees. With respect to (a) Col. 6, lines 19-24 are pointed out with respect to the application of both an insulating and sealing layer. The

first layer [52] (sealing) is put on after the second layer [54] (insulating) connected to the electrolyte membrane or the second separator [40]. In this manner, the layers are applied to a separator plate. Fig. 1 also shows that the layers must be applied, as they are placed in contact with a separator. With respect to (b), in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the fact that an electrolyte material is used to build up the insulating layer of the sealing structure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner would like to note that the claim language states "an electrolyte material is used for applying the insulating layer of the sealing structure." As second layer [54] (insulating layer) is placed next to electrolyte [22] (see fig. 1), the insulating layer is placed with respect to the electrolyte. Therefore the electrolyte is used for applying the insulating layer.

With respect to the Thomson et al. reference, Applicant argues that it does not disclose using the electrolyte material as the sealing.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., using the electrolyte material as the sealing) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner would like to note that the claim language



states "an electrolyte material is used for applying the insulating layer of the sealing structure." Since insulating layer [30] is placed with respect to the electrolyte [15] (i.e. the gap between the electrolyte and insulating layer seen in fig. 4a), the electrolyte can be said to be used for applying the insulating layer.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugenia Wang whose telephone number is 571-272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EW



GREGG CANTELMO  
PRIMARY EXAMINER

8/29/07